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NATURAL HERITAGE NEWS

The Newsletter of the Natural Heritage & Endangered Species Program

Inventorying and Protecting the Biological Diversity of the Commonwealth Since 1978

VOLUME 4, NUMBER 1

SPRING 1994

Heritage Programs Receive National Attention...

On December 6, 1993, Interior Secretary Bruce Babbitt signed a Memorandum of Understanding with The Nature Conservancy (TNC) to establish future cooperative activities with the National Biological Survey (NBS), a new bureau at the Department of the Interior. The purpose of this memorandum is to link the Natural Heritage Data Center Network and the National Biological Survey. The Massachusetts Natural Heritage & Endangered Species Program (NHESP) is part of this cooperative network of natural heritage programs and conservation data centers created by TNC, an international nonprofit organization devoted to the protection of biological diversity. These programs exist in all 50 states, Puerto Rico, the Navajo Nation, several Canadian provinces, countries of Latin America, the Caribbean, and the Pacific, as well as in units of the National Park Service and the U.S. Forest Service. All the heritage programs inventory and

monitor the status of species and ecological communities, the locations where they occur, and land use affecting those occurrences. The heart of a heritage program is the Biological & Conservation Data System (BCD), a window-driven software program that contains numerous fields for every rare species sighting or occurrence.

On June 6, 1994 the Biological & Conservation Data System, used by heritage programs and developed by The Nature Conservancy, received the international Computerworld Smithsonian Award in the Environment, Energy & Agriculture category. All award winners are acknowledged in the "Information Age" exhibition at the Smithsonian's National Museum of Natural History.

Natural heritage programs rank the rarity of species using a system

developed by TNC that assigns to each species or community a global ranking category (extremely rare, rare in a restricted range, etc.); parallel national and state ranking systems have also been developed. State ranks are assigned by each state's heritage program; global and national ranking are done under the guidance of TNC's national science department. Nationally, more than 40,000 species and ecological communities are included in the heritage inventory with more than 350,000 detailed occurrences mapped. Most heritage network units are funded and managed by state or federal agencies that operate cooperatively with TNC, which provides computer software, standardized procedures, technical assistance and training, and product support, as well as cooperative agreement and contract development with federal agencies.

[cont. on next page]

...But NHESP's Funding Not Yet Certain

Hope in the FY95 Budget

Although contributions to the Natural Heritage & Endangered Species Program have fallen steadily over the past five years, the Program has not received any state General Fund support since 1987.

As this issue goes to press, the legislature appears poised to fix the funding problems that have plagued the Program in recent years. On May 11th, Representative Steven Angelo (D-Saugus) and Representative Pamela Resor (D-Acton) offered a successful amendment to the House version of the FY95 state budget

that provides for approximately \$300,000 of tax revenue, or "General Fund", money to maintain NHESP's operating budget (specifically, it charges 75% of Line Item 2315-0100 in the state budget to the General Fund).

This amendment compensates for the continuing decline in contributions on state income tax forms to the Natural Heritage & Endangered Species Fund. The 1995 fiscal year budget has passed the House of Representatives but still needs Senate approval and the Governor's signature.

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We need your help! Please mail in the form on Page 5 with your contribution, or call NHESP at (617) 727-9194 for more information.

[Heritage Network, cont. from p.1]

"This is the first of many cooperative agreements that NBS will make with the private sector," Babbitt said. "The Nature Conservancy's support will be tremendously helpful in this first year of NBS's existence." The NBS is also seeking cooperative arrangements with state natural resource agencies directly.

Under the Heritage network agreement, a working group will be formed to explore establishing a National Heritage Data Center and to look into ways to work with natural heritage programs generally. The agreement calls for the completion of a national classification system for ecosystems and the eventual establishment of a grants-in-aid program to state Heritage Programs to increase the financial resources that are presently scarce at many programs (see funding story on page 1).

The National Biological Survey (NBS) was established by President Clinton on November 11, 1993 to gather, analyze, and disseminate the biological information necessary for the sound stewardship of the nation's natural resources and to foster understanding of biological systems and the benefits they provide to society. NBS, TNC, and heritage programs are interested in determining the status and trends of species and ecological communities; integrating natural resource information at local, regional, and national levels; developing national protocols for the classification, inventory, monitoring, and assessment of biotic resources; developing methodologies to detect threats to and degradation of animal and plant populations; advancing information management techniques; and creating a national biological information infrastructure.

Said Babbitt, "The National Biological Survey will produce the map we need to avoid the economic and environmental 'train wrecks' we see scattered across the country. NBS will provide the scientific knowledge America needs to balance the compatible goals of ecosystem protection and economic progress."

(Funding Shortage, cont. from p.1)

"Checkoff" Donations Inadequate

Voluntary contributions to the NHES Fund on state income tax forms, which have comprised 84% of the Program's operating budget, continue to decline steadily. (The remaining 16% of the budget comes from hunting, fishing, and trapping license fees.) The tax form contributions in 1992 totalled \$286,000. With roughly over 1/3 of the 1993 returns processed, it appears that contributions have fallen 19% behind where they were one year earlier (the projected total is \$232,000). Thus, donations on state tax forms will have declined 43% over the last four years, as illustrated in the graph below.

Current Fiscal Year

In the FY94 budget debate of June and July of 1993, Senator Robert Durand (D-Marlborough), among others, attempted to solve the Program's funding problems but these efforts ultimately fell short. Since that time, the Program has instituted significant spending cuts, deferred expenses and, thanks to EOEA Secretary Trudy Coxe and Department of Fisheries, Wildlife, & Environmental Law Enforcement Commissioner John Phillips, utilized some temporary funding to continue during this fiscal year.

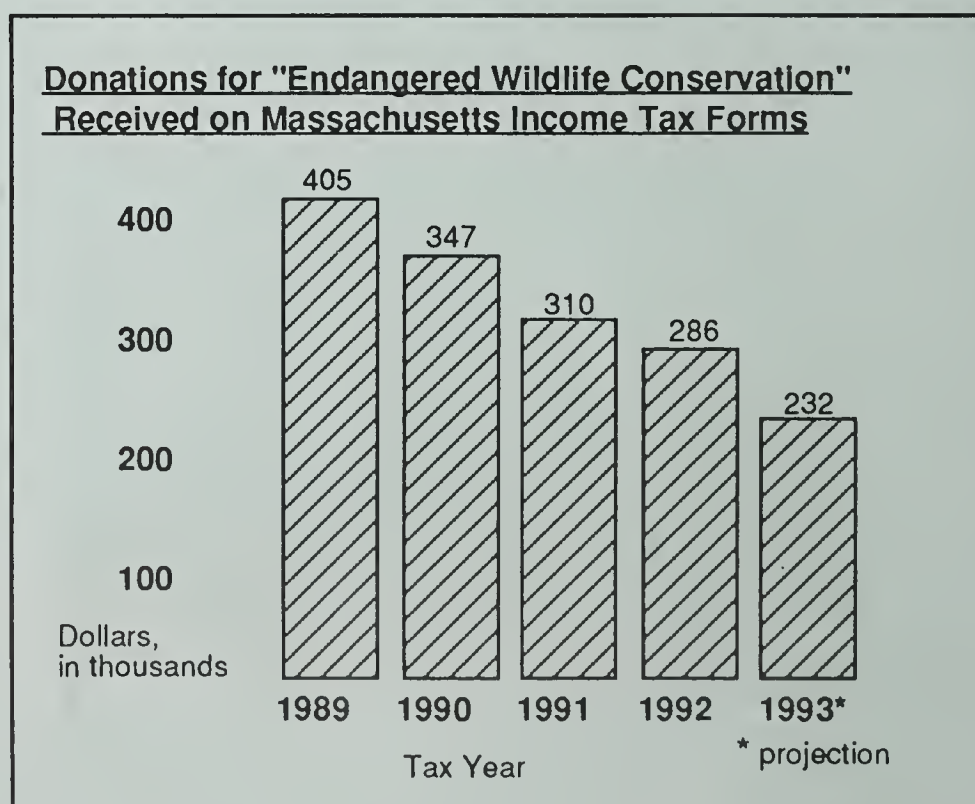
Full Plate

The Program has a wide range of responsibilities and tasks, from conducting extensive biological inventories of our endangered species to guiding land acquisition decisions. In addition, NHESP has in recent years gained several new regulatory responsibilities with the passage of the Massachusetts Endangered Species Act and the state Nature Preserves law. By providing each town conservation commission with information about rare wetlands wildlife in their town, the Program has also been helping to protect critical wetland habitats under the state's Wetlands Protection Act since 1987. And, the Program "certifies" vernal pools so that these ephemeral wetland habitats can be protected under the wetlands regulations.

Thank You

As we continue to work for you, we want to extend our thanks to the over 57,000 taxfilers who donate anonymously every year to help protect the state's biological diversity and to those people who called or wrote their legislators urging support for the Program.

-Henry Woolsey-



Piping Plover Population Increases, Thanks to Beach Management

Piping Plovers are back nesting on Massachusetts beaches! And the first clutches of eggs have hatched. We anticipate another successful nesting season after last year's record.

This federally threatened shorebird has responded rapidly to intensive protective management efforts.

Plovers are counted by the number of breeding pairs, of which there were 289 at 67 sites in Massachusetts in 1993. This total is the highest count of Piping Plovers recorded in Massachusetts since statewide surveys began in 1985, and represents a population increase of 111% between 1989 and 1993. This increase can be attributed to protection efforts by federal, state, and local officials, as well as concerned individuals and private con-

servation organizations. These measures include placing caged exclosures around plover nests to protect them from predators and restricting motor vehicle access to beaches during the time when the plover chicks are most vulnerable; small and flightless, at one day to 4 weeks old they run along the sand appearing almost invisible in their sandy camouflage colors.

A recent report of the Massachusetts Barrier Beach Task Force entitled "Guidelines for Barrier Beach Management in Massachusetts" includes as an appendix "Guidelines for Managing Recreational Use of Beaches to Protect Piping Plovers, Terns, and their Habitats in Massachusetts"; this has been guiding tern and plover management efforts since it was produced by the Division of Fisheries & Wildlife in April 1993. This April, the U.S. Fish & Wildlife Service released a similar and complementary document entitled "Guidelines for Managing Rec-

reational Activities in Piping Plover Breeding Habitat on the U.S. Atlantic Coast to Avoid Take under Section 9 of the Endangered Species Act."

Unfortunately, plover populations in many other states in its range are not doing as well and some populations are even falling for reasons that are being studied but are still not well understood. Clearly, human intervention and management have become crucial to the survival of this shore bird.

| <u>Animal</u> | <u>Global population</u> |
|----------------------|--------------------------|
| Desert Tortoise | 200,000 |
| Tiger | 9,000 |
| Northern Spotted Owl | 7,000 |
| Piping Plover | 5,000 |

Cliff Swallows Succeed With Help from Small Research Contract



We are pleased to report on a success story. Between 1991 and 1994, NHESP provided modest funding through our Small Research Contracts program to field biologist Mara Silver of Florence, Mass. to address the problem of declining populations of Cliff Swallows (*Petrochelidon pyrrhonota*) in western Mass. Silver, who is employed at Arcadia Wildlife Sanctuary in Easthampton, worked with a small colony of breeding Cliff Swallows at Graves' Farm in Williamsburg to discover obstacles to these birds' breeding success and develop long-term conservation strategies for their survival. The exciting result was that Silver enabled the colony she was working with to grow from 6 to 63 pairs in 3 years!

Although Cliff Swallows are not in

danger of extinction on the continent nor listed in Mass. as Endangered, Threatened, or Special Concern, they have been declining in this state for many years. They are one of 74 species that comprise the swallow and martin family (*Hirundinidae*). Historically, they bred in western North America where many cliff sites provided good surface adhesion of their mud nests. With the European settlement of the eastern United States, Cliff Swallows expanded their range, taking advantage of man-made structures which provided good nesting habitat. They were widespread in the East by the early twentieth century.

An example of how exotic species can negatively affect native ones, the importation of the House Sparrow from England to New York City in 1850 resulted in a growing sparrow population that competed with Cliff Swallows for nesting sites and killed their young. Besides the increased competition from the sparrows, the swallows were also faced with a greater number of painted barns, to which their nests adhere poorly. Conse-

quently, by 1880 the Cliff Swallow population began to decline in the East and english sparrows started to spread throughout New England. In 1992, there were no known breeding Cliff Swallows in Middlesex, Norfolk, Suffolk, Bristol, and Barnstable counties of Massachusetts; there are estimated to be about 500 pairs in the entire state.

To boost the success of the Cliff Swallow colony, Silver provided the swallows with nest-building material in the form of a large mud puddle and installed 75 fired clay "nest ledges" that are textured to simulate natural nest material for the swallows to build onto; she also used various methods to remove and discourage the nesting of House Sparrows in the area. As a result, she may have come a long way towards her objective—to see the Cliff Swallow remain a breeding bird in Massachusetts. Her work has shown that human intervention can be effective in luring back birds to traditional nesting sites and increasing the success of breeding birds.

1994 STATE BOX SCORE

Massachusetts List of Endangered, Threatened and Special Concern Species

(as listed in 321 CMR 10.60, January 14, 1994)

| Taxonomic Group | Endangered | Threatened | Special Concern | Listed Total | % of Native Species |
|--|---------------------|--------------------|-----------------|--------------|---------------------|
| MAMMALS (including 6 whales) | 7 (7 Federal) | 0 | 5 | 12 | 14% |
| BIRDS (breeding, not incl. Eskimo Curlew) | 11 (4 Federal) | 6 (1 Federal) | 13 | 30 | 14% |
| REPTILES (incl. 5 sea turtles) | 8 (4 Federal) | 5 (2 Federal) | 3 | 16 | 53% |
| AMPHIBIANS | 0 | 2 | 4 | 6 | 29% |
| FISH (inland species) | 4 (1 Federal) | 2 | 3 | 9 | 23% |
| INVERTEBRATES (non-marine only) | 22 (2 Federal) | 17 (2 Federal) | 54 | 93 | N/A |
| PLANTS (vascular) | 118 (3 Federal) | 81 | 54 | 253 | 15%** |
| TOTALS | 170 (21 Federal) | 113 (5 Federal) | 136 | 419 | 15%* |

Federal = Species also listed by the U.S. Fish & Wildlife Service as Federally Endangered or Threatened as of January 1994.

* Total percentage excludes invertebrates since even a rough number of native invertebrate species in the state is not known.

** Total percentage excludes 2% of our native plant species that have not been documented in this state since 1978.

Continuing to recognize the ecological importance of rare plant species, the Division of Fisheries & Wildlife added Farwell's Water-milfoil (*Myriophyllum farwellii*), Appalachian Firmoss (*Huperzia appalachiana*), and Bayard's Green Adder's-mouth (*Malaxis bayardii*) to the state's list of endangered species.

Farwell's Water-milfoil is an aquatic vascular plant with a natural range throughout Maine, New Hampshire, and Vermont, as well as central New York. It is also found in northern Michigan and Minnesota. It is listed as a threatened species in New Hampshire.

Myriophyllum farwellii plants grow completely underwater, unlike some other milfoils which can be either amphibious or emergent. As this is an aquatic plant, it is vulnerable to a number of threats such as eutrophication, acidification, and herbicide applications. Competition from the aggressive Eurasian Milfoil is also regarded as a threat.

Appalachian Firmoss, a newly described species, was "split" from the listed species Firclubmoss (*Huperzia [Lycopodium] selago*); therefore NHESP added Appalachian Firmoss to the state's Endangered list. This species can be distinguished from Fir Clubmoss structurally and ecologically. These two species have been found to be genetically distinct. This species is native to eastern North America. Unlike other similar species with indeterminant growth, Appalachian Firmoss has a predetermined lifespan of about 12-15 years.

Bayard's Green Adder's-mouth (*Malaxis bayardii*) was also "split" from its rare relative *Malaxis unifolia* and listed as Endangered. This decision was made after a digital image analyzer was used to measure drawings of flower lip shapes from 130 specimens, and found this taxon to be distinct. *M. bayardii* is typically found in dry oak woods, dry sandy soil, or oak or pine scrub. It is currently limited to southeastern Massachusetts.

VERNAL POOLS

A total of 633 vernal pools have now been certified by the Program. These spring pools of fresh water support rich communities that may include wetland plants, frogs and toads, salamanders, turtles, newts, and fairy shrimp. Some of these species, such as Wood Frogs and the mole salamanders, breed exclusively in vernal pools. These species annually take the chance that the pools will dry up before their tadpoles/larvae complete metamorphosis in exchange for the benefit of not being preyed upon by fish. Fairy shrimp spend their entire lives in this unique habitat. Many vernal pools have been filled by development, so certified vernal pools in areas otherwise regulated by the Wetlands Protection Act receive special protections.

1993 TERN INVENTORY

After tumbling 13% in 1992 to 8,601 pairs, the population of Common Terns (Special Concern) recovered a modest 4% in 1993 to reach 8,937 pairs. In 1993, the colony at Plymouth grew larger, increasing 21% to 3,721 pairs from 3,082 a year earlier. Plymouth Beach harbored 42% of all Common Terns nesting in Massachusetts in 1993.

As a result of ongoing gull discouragement activities on Ram Island, Mat-tapoisett since 1990, the island has re-emerged as an important ternery, with an estimated 98 pairs of Common Terns and 2 pairs of Endangered Roseate Terns. This represents a milestone in efforts to increase the number of nesting options available to these larger terns. However, overall numbers of Roseate Terns have declined in 1993 for the second consecutive year to an estimated 1,355 pairs.

For the third consecutive year, estimated numbers of Arctic Terns (Special Concern) fell to an all-time low of 7 pairs in this state, continuing the downward trend of these terns that started in the 1940's.

Numbers of Least Terns (Special Concern) stayed about the same at 2,622 pairs vs. 2,642 pairs in 1992.

| Number of Pairs | 1983 | 1993 |
|----------------------|--------------|--------------|
| Common Terns | 7,909 | 8,957 |
| Least Terns | 1,112 | 2,622 |
| Roseate Terns | 1,502 | 1,355 |
| Arctic Terns | 18 | 7 |

RAPTOR UPDATE



EAGLE COUNT

54 Bald Eagles and 2 Golden Eagles were recorded in the state in early January. This is not as high a number as the previous winter, when a record 70 eagles were recorded, up 25% from the 1992 count of 56 eagles. Last summer (1993), 10 chicks fledged out of 6 nests including one active nest discovered unexpectedly at Assawompsett Pond in Lakeville. Seven nests are occupied this spring.

PEREGRINES' PROGRESS

The big news in Boston is that the Peregrine Falcon nest on top of the US Customs House in downtown Boston has had a "coup." In April, a younger female falcon from Maine killed the matriarch which had reared 21 chicks in Boston over the past 6 years with the same mate; the new female then took her place beside the male and in May, the new couple's 4 chicks were hatched.

In the Springfield nest, 4 chicks were also hatched in May; the youngest one was removed from the nest for several days as it initially could not compete with the others for food.

Last summer, 4 chicks fledged from Boston and 1 from Springfield.



GREEN LICENSE PLATE

A bill to create a wildlife license plate with proceeds to go to the Natural Heritage & Endangered Species Fund has been filed again by Senator Durand. The bill, S1069, was recently reported out favorably from the legislature's Public Safety Committee.

PUBLICATIONS

The 1994 Massachusetts Natural Heritage Atlas has been published. The atlas contains maps of estimated habitats of rare wetlands wildlife and certified vernal pools for use with Mass. Wetlands Protection Act Regulations, as well as high-priority sites of rare species habitats and natural communities. The atlas is available for \$38 to the "Natural Heritage & Endangered Species Fund."

STAFF NOTES

Hanni Dinkeloo has replaced Environmental Reviewer Jay Copeland who has left NHESP to undertake freelance writing. Hanni has a master's degree in biology from the Univ. of New Mexico and a degree in environmental law from Northwestern School of Law. Ann Kelly is now our Assistant Data Manager. Ann came from the North Carolina Natural Heritage Program where she was Information Specialist. And congratulations to Wetlands Environmental Reviewer Pat Huckery and her husband Bob on the birth of 10-lb, 6-oz Isabelle Day Tower on May 30th.

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Small Research Contracts 1994 Project Funding

Thanks to funding from The Nature Conservancy, the Dept. of Defense, the U.S. Environmental Protection Agency, U.S. Fish & Wildlife Service and the Dept. of Fisheries, Wildlife, & Environmental Law Enforcement, NHESP is able to fund over 30 projects this field season,

Vertebrates

- Piping Plover monitoring.
- Spring survey of seal populations.
- Surveys of Timber Rattlesnakes in Berkshire County.
- Cliff Swallow nesting (see story on page 3).
- Research on minimum habitat configurations for Spotted Salamanders.
- Inventory of vertebrates at Westover Air Reserve Base.
- Ongoing study of Blanding's Turtles at Fort Devens.

Invertebrates

- Monitoring Puritan Tiger Beetles in the Connecticut River Valley.
- Surveys for American Burying Beetle on Nantucket.
- Research on the Northeastern Beach Tiger Beetle.
- Inventory for rare mussels in the Connecticut River Valley.
- Inventory of certain aquatic insect groups to determine species rarity and distribution.
- Surveys for Eastern Elderberry Longhorned Beetle.
- Inventory of dragonflies and damselflies of coastal plain ponds.
- Inventory of rare lepidoptera at Oxbow National Wildlife Refuge.
- Lepidoptera survey of Westover Air Reserve Base.

Plants

- Research on the sensitivity of lichen flora to off-road vehicle use at Myles Standish State Forest.
- Surveys of 20 rare macrolichens and lichens of Westover Air Reserve Base.
- Inventory of mosses and liverworts of Massachusetts and prepare checklist.
- Botanical inventory of Westover Air Reserve Base.

Natural Communities

- Investigations into vegetation of the dune swales of Sandy Neck.
- Vegetation of a Nyssa-dominated wetland in central New England.
- Study of succession of grassy openings on the Holyoke Range, Connecticut River Valley.
- Inventory of priority natural community types in Conn. River Valley.

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NATURAL HERITAGE & ENDANGERED SPECIES PROGRAM
DIVISION OF FISHERIES & WILDLIFE
100 CAMBRIDGE STREET
BOSTON, MA 02202

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NATURAL HERITAGE NEWS

The Newsletter of the Natural Heritage & Endangered Species Program

Inventorying and Protecting the Biological Diversity of the Commonwealth Since 1978

VOLUME 4, NUMBER 2

FALL 1994

State Acquires Key Lands for Conservation

Coastal Plain Ponds, Other Habitats Protected

The state Division of Fisheries & Wildlife (DFW) on June 29th acquired 357 acres of land in Barnstable for just under \$5.2 million, the most expensive single acquisition undertaken by the agency to date. The Hyannis ponds purchase protects five outstanding Coastal Plain ponds and topped a very successful year of land acquisitions to preserve the state's biological diversity. Over the last 18 months over 1150 acres have been acquired specifically to help protect more than 30 state-listed rare species and habitats as diverse as Pitch Pine/Scrub Oak barrens, coastal sandplain grasslands, and brackish tidal river marshes.

Hyannis Ponds Acquisition

In 1980 the Natural Heritage & Endangered Species Program (NHESP) identified the Hyannis ponds as one of the highest priority sites for protection in Massachusetts. After 14 years of biological inventory and research by NHESP, this site remained one of the most important unprotected concentrations of biological diversity in the Commonwealth.

The DFW took the ecologically sensitive Hyannis ponds property by eminent domain paying fair market value after negotiations with the landowner,

Independence Park Inc., came to a stalemate. Development of the industrially zoned area has been controversial for decades: its protection safeguards local drinking water supplies as well as rare species.

In 1888 botanist Walter Deane first documented rare plants at the Hyannis ponds (often called the Mary Dunn ponds after the largest one). In 1912 another botanist, Edmund W. Sinnott, wrote in an article entitled "The Pond Flora of Cape Cod":

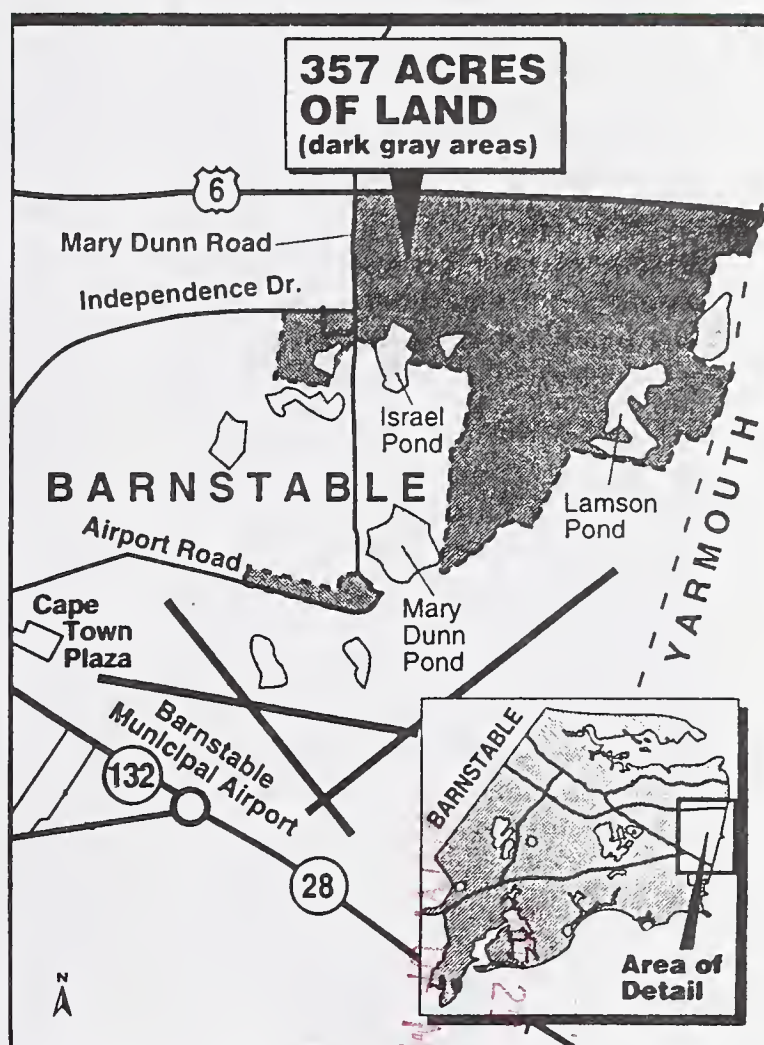
"Perhaps the richest flora of all, however, is found on the 'Mary Dunn's' Ponds near the eastern border of Barnstable township. There are a score or more of these, of all sizes and in all stages of filling, and a number of plants grow here which the writer has found nowhere else on the Cape."

Coastal Plain ponds, which formed as ice block kettle ponds at the end of the last glaciation, are shallow depressions that intercept the water table. Seasonal fluctuations in the water levels of Coastal Plain ponds on Cape Cod and in Plymouth create a shoreline habitat that supports some of the richest communities of rare plant species in Massachusetts. Coastal Plain ponds are also one of the state's most threatened and vulnerable natural community types.

The significance of the Hyannis ponds complex cannot be characterized by any single measure. There is a remarkable concentration of 15 state-listed rare

species, many of which have restricted global ranges, found together at this site. Two of the rare species, including the Plymouth Gentian, occur here in greater numbers than at any other site in the world and likely have their most viable populations here. In addition, the Hyannis ponds complex has remarkable ecosystem integrity: the combination of species, including the rare ones, found at these ponds reflects diverse and viable ecosystems rather than isolated, remnant rare species sites. Several of the Hyannis ponds are among the least disturbed examples of Coastal Plain pond natural community types remaining in the Commonwealth.

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Map by James Warren, Cape Cod Times

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[Acquisition, cont. from Page 1]

Endangered Terns Return to Ram Island

"We've turned a monoculture into a diverse bird community."

Other Acquisitions

A 5-acre purchase in **Mashpee** further protects the DFW's 100-acre property containing Pitch Pine barrens and Atlantic white cedar swamps. The Division also acquired small but buildable inholdings in existing conservation lands on **Nantucket**, thus helping to maintain the ecological integrity of the open Miacomet moorlands—an extensive sandplain grassland harboring rare plants and animals. In **Wellfleet**, Diamond-back Terrapin turtles were protected by the purchase of 71 acres of salt marsh and a small island. This acquisition triggered additional gifts of salt marsh to the Division and the Wellfleet Conservation Trust. In **Brewster** a small wetland harboring botanical rarities was obtained. In **Rowley**, 73 acres were added to the DFW's Mill River Wildlife Management Area, further protecting the Mill River and its brackish tidal marshes. This is one of the best examples of such habitats in the state and it harbors several specialized rare plants. In **Boxborough**, a 25-acre purchase helped protect the Great Blue Heron



Great Blue Heron

rookery that is visible to the south of Route 2. In **Colrain**, a 30-acre acquisition helped protect the Green River and its rare species. Finally, DFW jointly with the Department of Environmental Management acquired a 1100-acre parcel in **Egremont** known as Jug End, which contains several important habitats. All these acquisitions were funded by open space bond funds passed by the legislature in 1988 and made available for expenditure this year by Governor Weld.

- Henry Woolsey -

A project initiated more than ten years ago to re-establish a tern colony on Ram Island off Mattapoissett has come to fruition: the island is a tern colony once again. Terns nested on the island for 50 years until gulls, attracted by easy pickings from refuse on the mainland, displaced the terns. State ornithologist Brad Blodget managed the program in which gulls were removed from the island where they had harassed and driven off most other nesting birds including the federally endangered Roseate Tern.

"When gulls start to invade an island they will overrun it in a matter of a few years," said Blodget. "While removing gulls is not something that we do lightly, this was clearly a case where something had to be done in order to help restore an endangered species."

With no opposition to the project, the Division began its gull removal program in 1990, when the island was overrun by approximately 750 pairs of great black-backed and herring gulls and 200 pairs of double-crested cormorants. Cormorants are not intimidated by gulls, although gulls are opportunists and will prey on cormorant young and eggs when they are available.

The Division focused this gull management program at Ram Island because the problem was clear: the proliferation of gulls at Ram island had driven away virtually all other nesting species by displacing them and feasting on their eggs and young.

The gull colony "represented an imbalanced situation," said Blodget, because "it was society's wasteful policies that had fostered the artificially bloated gull population. When man dominates the ecosystem, it becomes simplified—with fewer species and much less diversity. On Ram Island, we've turned a monoculture into a diverse bird community."

Blodget has been leading the project since 1979, when the first discussion of managing wildlife at Ram Island began. At that time the US. Fish and Wildlife

Service, based on an environmental assessment of the proposed Roseate Tern Recovery Plan, agreed that something had to be done.

Wildlife officials used various methods to discourage nesting gulls and cormorants on Ram Island, including removing nests and topping nests with twine. However, the cormorants would merely incorporate the twine into their nests and go on with business as usual. In 1989 there were approximately 700 nesting pairs of Herring gulls, 50 pairs of Great black-backed gulls and 100 pairs of Double-crested cormorants. Eventually they "got the message", said Blodget and the cormorants abruptly abandoned the island all at once in 1991. As Blodget put it, "it was like magic."

The same year, as gull numbers declined, tern decoys were set out on the island in suitable tern-nesting habitat areas and a handful of terns started to view the island as a possible nesting site, one stopping to "prospect" among the decoys. Then in 1992, terns finally returned to nest at the island for the first time in 20 years. One pair of Common terns and three pairs of Least terns settled at Ram Island and a larger number of terns were seen prospecting there—a good indication that even more would return the next year, which they did.

This year, nesting gulls are almost non-existent on the island. Instead, there are 325 pairs of nesting Common Terns, 124 pairs of Roseate Terns and 52 pairs of Least Terns; and at least seven pairs of shore birds including Killdeer, Oystercatcher, Willet and Spotted Sandpiper. Still, as long as gulls are around, terns are in danger of being expelled once again. That is why DFW's "island tenders" will keep a constant vigil at Ram Island during future nesting seasons to ensure that the gulls don't return and undo the hard work of Blodget and his colleagues, who have given endangered terns another chance to nest.

- Sally Carroll-

Military Bases Provide Habitat For Rare Grassland Birds

Two state-listed birds, the Upland Sandpiper (Endangered) and Grasshopper Sparrow (Species of Special Concern) breed in Massachusetts in relatively small, dispersed populations in grasslands maintained through mowing or grazing. They occur primarily on large military reservations and airports, as well as on extensive grazed lands on the Elizabeth Islands in Buzzards Bay.

Statewide censuses conducted in 1993 by NHESP, Massachusetts Audubon Society, and other cooperators found 103 of 108 Upland Sandpipers (95%) occurred at just 7 military reservations or airports, including 78 (72%) at Westover Air Reserve Base (ARB) in Chicopee and the Massachusetts Military Reservation in Bourne. Of 307 territorial male Grasshopper Sparrows, 163 (53%) were at 12 airports and military reservations, including 125 (41%) at Westover ARB and Fort Devens in Lancaster.



Grasshopper Sparrow
Birds of North America.
Golden Press, New York, 1966.

The most important site for grassland birds in Massachusetts is Westover Air Reserve Base in Chicopee. NHESP first realized the importance of Westover in 1984 and 1985 when we were permitted to census grassland birds on the base and discovered

breeding Upland Sandpipers and Grasshopper Sparrows scattered over 1,500 acres of grasslands adjacent to runways and taxiways. Based on recommendations from NHESP, base personnel curtail mowing on large areas of the airfield during the nesting season (1 May -31 July) to improve habitat and avoid crushing eggs or killing chicks or incubating adults. As a result, numbers of Upland Sandpipers, Grasshopper Sparrows, and other grassland birds have increased substantially on the base (Table 1). Westover ARB currently supports the largest concentration of grassland birds in New England: we recorded 101 adult Upland Sandpipers and 168 territorial male Grasshopper Sparrows during censuses in June 1994.

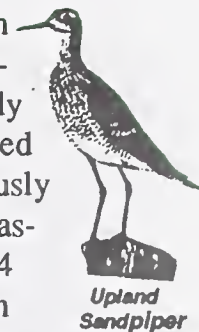
NHESP has worked since the mid-1980's to maintain or increase populations of rare grassland birds on Massachusetts' larger airports and military bases, through cooperative agreements, formal environmental reviews and comments, and informal consultation. We work with airfield managers and natural resources staff to maintain or improve grasslands by modifying mowing practices and avoiding or mitigating habitat loss during training activities, removal and disposal of underground storage tanks and contaminated soil, and construction of taxiways and training facilities. Our recommendations for mowing have been compatible with airport safety concerns about bird-aircraft collisions, in that maintaining tall grass actually discourages larger flocking birds, such as gulls and waterfowl, that pose a threat to aircraft.

The challenge we face in trying to

preserve grassland birds in the Northeast is that hundreds of acres of intensively managed habitat are needed to support even precariously small populations. In Massachusetts in 1993, only 4 sites supported more than 10 territorial male Grasshopper Sparrows and all were greater than 200 acres in area. Only 3 sites, ranging from 1,170 to 1,550 acres, supported 10 or more adult Upland Sandpipers. At Fort Devens' parachute drop zone, for example, brush-cutting and periodic mowing outside the breeding season have maintained over 200 acres of grassland with 2-4 Upland Sandpipers and 25 or fewer singing male Grasshopper Sparrows since at least 1986. In contrast, lack of mowing on portions of the Massachusetts Military Reservation on Cape Cod has caused several hundred acres to revert from grassland to trees and shrubs during the past decade. Concurrently, numbers of territorial Grasshopper Sparrows declined from 22 in 1985 to 0 in 1993. NHESP is working with natural resources staff of the Massachusetts National Guard to develop strategies for reclaiming and managing these grasslands, along with similar habitats on our adjacent Crane Wildlife Management Area.

Our grassland bird monitoring and research have been supported in part by the Department of Defense.

-Scott Melvin-



Upland Sandpiper

Table 1. Numbers of Upland Sandpipers (adults) and Grasshopper Sparrows (singing males) at Westover ARB, 1987-1994.

| Species | 1987 | 1988 | 1989 | 1993 | 1994 |
|---------------------|-------|------|------|------|------|
| Upland Sandpiper | 20-30 | 23 | 41 | 55 | 101 |
| Grasshopper Sparrow | 55 | 47 | 74 | 99 | 168 |

PUBLICATIONS

In the spring the Division of Fisheries & Wildlife published a special edition of *Massachusetts Wildlife* that focused on exotic (or non-indigenous) species. Copies of this issue can be obtained for \$3.00 by writing: Editor, Massachusetts Wildlife, Division of Fisheries & Wildlife, Westboro, MA 01581.

Conservation of Massachusetts Native Plants: A cooperative effort

"It is more than one state botanist can do alone," I thought, upon assuming this position in 1992. I was faced with the task of monitoring all known populations of the 253 rare native vascular plant species that are officially listed as endangered, threatened or of special concern in Massachusetts. In addition, another 187 species are on an unofficial "Watch List." The database at the Natural Heritage & Endangered Species Program (NHESP) holds over 4500 current and historical records for these species. Of our total native plant species, including the 15% that are state-listed, about 28% are considered to be rare, historical (not documented since 1978) or extirpated (no longer occurring in the state.)

The role of NHESP in rare plant conservation is one of leadership and cooperation as well as active participation in the tasks of identifying which rare plant species deserve listing, inventory, research, monitoring or management. The Program relies heavily on help from many agencies, organizations, and individuals, some of whom work for little or no compensation.

New England Plant Conservation Program



The best ally of NHESP in fulfilling our mission is an informed Massachusetts citizenry with its long tradition of interest in conservation and natural history. Therefore, it was fortuitous that the New England Plant Conservation Program (NEPCoP) was born at the same time that I arrived in Massachusetts. Initiated by the New England Wild Flower Society (NEWFS), this group has attempted to set regional policies and priorities for plant conservation. A special committee of botanists working with NEPCoP is reviewing the native flora of New England to determine which vascular plant species merit attention as regional rarities or threatened species. The group hopes to publish a regional rare plant list to be called "Flora Conservanda."

Another aspect of NEPCoP is its

State Task Forces that focus on needed plant conservation activities in each New England state. These groups of trained professionals meet annually and map out an agenda for the all-too-short New England plant growing season. Besides conducting 60-70 surveys for some of the region's rarest plant species, this group manages plant populations where necessary and sometimes collects seed samples for seed banking and propagation at the NEWFS-owned garden facilities in Framingham.

One inspiring aspect of NEPCoP is its Volunteer Conservation Corps, a state-wide volunteer network of about 20 rare-plant monitors established by NEWFS and NHESP. Kelly Slater, a former NHESP staff member and current Conservation Program Officer at NEWFS, trains and assists the volunteers. Some volunteers have taken on extra tasks, like Therese Thompson of Harvard, Mass. who visited more than 20 herbaria in Massachusetts and transcribed all data on the New England Blazing Star (*Liatris scariosa* v. *novae-angliae*). In doing this she documented the decline of this species from having been found in 53 towns historically to only 14 towns currently.

Besides this organized volunteer effort, NEPCoP receives rare plant records from a host of supporters across the state. Some of these finds turn out to be very significant, such as the population of purple giant hyssop (*Agastache scrophulariifolia*) discovered by Charlie Quinlan of Cummington--all previous Massachusetts records on file for this species date back to before 1920.

The Nature Conservancy

An ever-present partner in our plant conservation effort is The Nature Conservancy (TNC), whose staff members in the Massachusetts field office assist in annual site scorecard meetings and participation in field activities. Julie Richburg, their Assistant Stewardship Director, leads their botanical field activities. A major TNC-led effort in 1994 has been a "Coastal Plain Ponds Initiative" aimed at protecting rare plants at

these ponds; and Julie and TNC volunteer Linda McElroy have been helping NHESP prepare former state botanist Bruce Sorrie's manuscript entitled "County Checklist of Massachusetts Plants" for publication by DFW in 1995. In the process, they have helped NHESP create a database of the county records of Massachusetts plants.

Grant Funding

Another avenue to plant conservation is through grant funding. In 1994, 18 botanical research contracts were initiated by the Natural Heritage & Endangered Species Program. Several of the contracts funded through NHESP's Small Research Contract Program support studies on rare or declining lichen, moss and liverwort species in the state.

NHESP received the greatest amount of outside funds from the U.S. Department of Defense, which has provided for: floristic survey work at Camp Edwards; bottomland vegetation analysis and rare plant population monitoring at Fort Devens; and vegetation and lichen surveys at Westover Air Reserve Base.

Using funds from the U.S. Fish & Wildlife Service (USFWS), NHESP conducted rare plant searches in the Connecticut Valley within the proposed Conte National Wildlife Refuge. USFWS also provided for the inventory, habitat, demographic and management studies of the federally listed Sandplain Gerardia (*Agalinis acuta*), American Chaffseed (*Schwalbea americana*), Northeastern Bulrush (*Scirpus ancistrochaetus*), Small Whorled Pogonia (*Isotria medeoloides*), and Seabeach Amaranth (*Amaranthus pumilus*); and for three federal candidates for listing: New England Boneset (*Eupatorium leucolepis* v. *novae-angliae*), Variable Sedge (*Carex polymorpha*), and New England Blazing Star. On many of these projects, researchers were only partially compensated by these federal funds and thus NHESP is exceedingly appreciative of the dedicated people who voluntarily contributed extra time and effort.

- Paul Somers-

BEETLE NOTES

Two species of federally listed beetles that formerly were more widespread in New England are being monitored by NHESP:

A population of 40 adult Northeastern Beach Tiger Beetles (*Cicindela dorsalis dorsalis*), a federally threatened species, was resurveyed on Martha's Vineyard, and a new population of 142 individuals was rediscovered in southeastern Massachusetts at a location where they had not been found since 1972. This new population occurs on conservation land.

The federally endangered American Burying Beetle (*Nicrophorus americanus*) is being reintroduced to Nantucket Island where it has not been recorded since 1926. Tom French, Assistant Director for Natural Heritage and Endangered Species, along with staff from the United States Fish & Wildlife Service and Mass. Audubon Society as well as an independent biologist released 48 beetles on Nantucket Island this July. A follow-up check on these beetles in August was filmed for New England Cable News and will be shown on the program "At Nine Knots" in January 1995. Prior to this summer's release this beetle was known from only

two sites in New England.

NHESP will survey and monitor the teneral (newly emerged) adult beetles on the island to evaluate the survival, numbers, and distribution of the released beetles' progeny. This ambitious reintroduction effort is based on the success of a five-year NHESP project that reintroduced the American Burying Beetle to Penikese Island in Buzzards Bay. Three islands in New England now harbor this rare beetle.



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NEWS NOTES

NHESP receives General Fund support: Thanks to the efforts of Senator Durand, Representative Angelo, Representative Resor and others, in July the state legislature appropriated approximately \$300,000 of General Fund money to help support the Program's annual operating budget. This is the first time since 1988 that NHESP has received General Fund monies. Now 50% of the Program's operating budget comes from the General Fund, 16% from hunting and fishing license fees and 34% from contributions for "Endangered Wildlife Conservation" (NHES Fund) on state income tax forms. Contributions for tax year 1993 total about \$270,400, down 33% over the past 4 years.

Our Thanks: We also receive direct donations from concerned citizens and conservationists such as Kathleen

(Betty) Anderson who gave a \$250 honorarium she received to the Program. And this year, the family of Mr. Joseph DiCarlo of Conway requested contributions in his name to benefit NHESP. Thus far, more than 16 different memorial gifts have been donated to the Program by the DiCarlo family and friends. We are very grateful to all donors for their generous support.

Whale license plate does not benefit NHESP: The new environmental license plate depicting a Right Whale and two Roseate Terns is the most popular specialty license plate so far, the Boston Globe recently reported. Half the cost of each \$70 plate is a tax-deductible donation to the Massachusetts Environmental Trust. Established in 1988, the Trust seeks to protect Massachusetts' marine waters and to increase public awareness of the harbors, bays, and other features of the state's coastal zone.

As our regular readers know, a bill (S1069) filed by Senator Robert Durand, Representative Steven Angelo and Representative Pamela Resor would create an endangered species license plate that would generate \$40 a plate for the NHES Fund as well as serve to remind motorists that they can also contribute on their state income tax forms. This bill is still pending in the Senate Ways and Means Committee.

STAFF NOTES

Vicki Frey started in October as our Assistant Data Manager. Vicki came from the Colorado Natural Heritage Program where, as Assistant Botanist, she collected information on the state's rare plants and managed interns and volunteers.

And congratulations to **Tom French** and his wife Diane on the birth of 8-lb, 5-oz Peter Samuel on October 14th.

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